

REMARKS

Claims 40-59 have been canceled without prejudice or disclaimer. Claims 60-87 have been added and therefore are pending in the present application. Claims 60-87 are supported by claims 40-59.

The specification has been amended to correct a typographical error.

It is respectfully submitted that the present amendment presents no new issues or new matter and places this case in condition for allowance. Reconsideration of the application in view of the above amendments and the following remarks is requested.

I. The Objection to the Specification

The Office objected to the specification due to an informality contained at page 10, line. This informality has been corrected. Therefore, this objection has been overcome.

The Office also stated that various letters are missing for some words. Applicants respectfully request clarification of this objection because they have been unable to identify any missing letters.

II. The Objection to the Claims 40-59

The Office objected to claims 40-59 because the "abbreviation GH-61 must be written in full in the first instance." Claims 40-59 have been rewritten as claims 60-86 to recite the abbreviation GH-61 in full in each independent claim. Therefore, this objection has been overcome.

III. The Rejection of Claims 40-54 under 35 U.S.C. 112

Claims 40-54 are rejected under 35 U.S.C. 112, as failing to comply with the written description requirement. Claim 54 has been canceled. This rejection of claims 40-53 is respectfully traversed.

Claims 40-53 are drawn to methods of preparing an edible product using a GH-61 polypeptide. Applicants have shown in the specification that these polypeptides retard the staling of edible products. Thus, these claims are drawn to a new use of a class of enzymes. This is a pioneering invention, and therefore Applicants are entitled to broad claims for this invention.

For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 112. Applicants respectfully request reconsideration and withdrawal of the rejection.

IV. The Rejection of Claims 40-57 under 35 U.S.C. 112

Claims 40-57 are rejected under 35 U.S.C. 112 "because the specification, while being enabling for the polypeptides of SEQ ID NO: 2 and 4 and the method using the same to prevent staling of edible products, does not reasonably provide enablement for any GH-61 from any source...." This rejection is respectfully traversed.

It is well settled that "[t]he first paragraph of section 112 requires nothing more than objective enablement. How such a teaching is set forth, either by the use of illustrative examples or by broad terminology, is of no importance." *In re Marzocchi*, 169 USPQ 367, 369 (CCPA 1971). Moreover, "a specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as in compliance with the enabling requirement of the first paragraph of section 112 unless there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support." *In re Marzocchi*, 169 USPQ at 369.

"The determination of what constitutes undue experimentation in a given case requires the application of a standard of reasonableness, having due regard for the nature of the invention and the state of the art ... The test is not quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed to enable the determination of how to practice a desired embodiment of the invention claimed ..." *Ex parte Jackson*, 217 U.S.P.Q. 804 (Bd. Pat. App. 1982).

It is also well settled that an assertion by the Patent Office that the enabling disclosure is not commensurate in scope with the protection sought must be supported by evidence or reasoning substantiating the doubts so expressed. *In re Dinh-Nguyen*, 181 U.S.P.Q. 46 (C.C.P.A. 1974). See also *U.S. v. Telectronics*, 8 U.S.P.Q.2d 1217 (Fed. Cir. 1988); *In re Bowen*, 181 U.S.P.Q. 48 (C.C.P.A. 1974); *Ex parte Hitzeman*, 9 U.S.P.Q.2d 1821 (BPAI 1988).

Moreover, in the absence of any evidence or apparent reason why compounds do not possess the disclosed utility, the allegation of utility in the specification must be accepted as correct. *In re Kamal*, 158 U.S.P.Q. 320 (C.C.P.A. 1968). See also *In re Stark*, 172 U.S.P.Q. 402, 406 n. 4 (C.C.P.A. 1972) (the burden is upon the Patent Office to set forth reasonable grounds in support of its contention that a claim reads on inoperable subject matter).

We draw the Examiner's attention to *In re Angstadt*, 190 U.S.P.Q. 214 (C.C.P.A. 1976). In *Angstadt*, the claimed process of preparing hydroperoxides used a metal salt complex as a

catalyst. The specification disclosed catalysts that worked and some that gave little or no yield of hydroperoxides. The claims were rejected for lack of enablement, specifically as requiring undue experimentation to find useful catalysts. This rejection was reversed by the CCPA.

In holding that the claims did satisfy 35 U.S.C. 112, the Court observed, 190 U.S.P.Q. at 218:

We cannot agree with the board that appellants' disclosure is not sufficient to enable one of ordinary skill in the art to practice the invention without undue experimentation. We note that many chemical processes, and catalytic processes particularly, are unpredictable, [citation omitted] and that the scope of enablement varies inversely with the degree of unpredictability involved, [citation omitted]. That this particular process is unpredictable is demonstrated further by appellants in their specification. Appellants have disclosed forty examples; one of these examples yields no hydroperoxides in the final product. Also, appellants have expressly indicated in their specification that some of these organometallic complex catalysts 'yield *** no hydroperoxides in the final product.'

Appellants have apparently not disclosed every catalyst which will work; they have apparently not disclosed every catalyst which will not work. The question, then, is whether in an unpredictable art, section 112 requires disclosure of a test with every species covered by a claim. To require such a complete disclosure would apparently necessitate a patent application or applications with 'thousands' of catalysts along with information as to whether each exhibits catalytic behavior resulting in the production of hydroperoxides. More importantly, such a requirement would force an inventor seeking adequate patent protection to carry out a prohibitive number of actual experiments. This would tend to discourage inventors from filing patent applications in an unpredictable area since the patent claims would have to be limited to those embodiments which are expressly disclosed. A potential infringer could readily avoid 'literal' infringement of such claims by merely finding another analogous catalyst complex which could be used in 'forming hydroperoxides.'

The Court, 190 U.S.P.Q. at 218, recognized that some experimentation might be necessary for the skilled worker to select non-exemplified catalysts for use:

Appellants have, in effect, provided those skilled in this art with a large but finite list of transition metal salts from which to choose in preparing such a complex catalyst. Appellants have actually carried out 40 runs using various transition metal salts and hexaalkylphosphoramides. If one skilled in this art wished to make and use a transition metal salt other than those disclosed in appellants' 40 runs, he would merely read appellants' specification for directions how to make and use the catalyst complex to oxidize the alkylaromatic hydrocarbons, and could then determine whether hydroperoxides are, in fact, formed. The process discovered by appellants is not complicated, and there is no indication that special equipment or unusual reaction conditions must be provided when

practicing the invention. One skilled in this art would merely have to substitute the correct mass of a transition metal salt for the transition metal salts disclosed in appellants' 40 runs. Thus, we have no basis for concluding that persons skilled in this art, armed with the specification and its 40 working examples, would not easily be able to determine which catalyst complexes within the scope of the claims work to produce hydroperoxides and which do not.

However, while some experimentation might be necessary, as long as the experimentation was not "undue experimentation," the claims would not violate 35 U.S.C. 112, *Angstadt*, Id:

Since appellants have supplied the list of catalysts and have taught how to make and how to use them, we believe that the experimentation required to determine which catalysts will produce hydroperoxides would not be undue and certainly would not 'require ingenuity beyond that to be expected of one of ordinary skill in the art.' (Emphasis added).

As in *Angstadt*, the present application identifies three GH-61 polypeptides and describes numerous sources for the polypeptides of the invention (see, e.g., pages 17-18 of the specification). The specification also contains an extensive disclosure of techniques which are well known in the art and indeed routine for persons of ordinary skill in the art for identifying other polypeptides of the present invention. Applicants describe methods for preparing and probing DNA libraries; for isolating nucleic acids encoding the polypeptides; for determining cross-hybridization of the nucleic acids encoding the polypeptides; and for comparing the percent identity of the deduced amino acid sequences of the polypeptides to the mature polypeptides of SEQ ID NOS: 2, 4 and 6. It is well within the skill of the art to isolate and identify the claimed nucleic acid sequences using Applicants' disclosure.

Moreover, the specification illustrates how the enzymes are used, e.g., for retarding staling. While some experimentation might be necessary to identify non-exemplified GH-61 polypeptides, such experimentation would require carrying out a simple process without special equipment or unusual reaction conditions, as in *Angstadt*. This experimentation, if required, "would not be undue and certainly would not 'require ingenuity beyond that expected of one of ordinary skill in the art.'" (*Angstadt*, 190 U.S.P.Q. at 218). Certainly, there is no evidence of record to the contrary.

For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 112. Applicants respectfully request reconsideration and withdrawal of the rejection.

V. The Rejection of Claim 54 under 35 U.S.C. 112

Claim 54 is rejected under 35 U.S.C. 112 as being indefinite. Claim 54 has been canceled without prejudice or disclaimer. Therefore, this rejection is rendered moot.

VI. The Rejection of Claims 40-54 under 35 U.S.C. 102

Claims 40-54 are rejected under 35 U.S.C. 102(b) as being anticipated by Saloheimo et al. (abstract of Eur. J. Biochem 249(2): 584-591 (1997)). This rejection is respectfully traversed.

The Saloheimo et al. reference is said to disclose a GH-61 polypeptide

However, Saloheimo et al. do not disclose dough compositions comprising or methods for preparing an edible product using a GH-61 polypeptide, as claimed in claims 60-73.

Moreover, Saloheimo et al. do not disclose the polypeptides claimed in 74-87, namely polypeptides having an amino acid sequence which has at least 90% identity to amino acids 1-216 of SEQ ID NO: 2, amino acids 1-304 of SEQ ID NO: 4, or amino acids 1-201 of SEQ ID NO: 6; or which are encoded by a nucleotide sequence which hybridizes under medium stringency conditions with any of the polynucleotide probes recited in claim 74.

For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 102. Applicants respectfully request reconsideration and withdrawal of the rejection.

VII. The Rejection of Claims 40-54 under 35 U.S.C. 103

Claims 40-54 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al. (abstract of submission to National Research Institute of Brewing, Genetic Engineering Division (2001)). This rejection is respectfully traversed.

The Ito et al. reference is said to disclose another GH-61 polypeptide

However, Ito et al. do not disclose dough compositions comprising or methods for preparing an edible product using a GH-61 polypeptide, as claimed in claims 60-73.

Moreover, Ito et al. do not disclose the GH-61 polypeptides claimed in 74-87, namely polypeptides having an amino acid sequence which has at least 90% identity to amino acids 1-216 of SEQ ID NO: 2, amino acids 1-304 of SEQ ID NO: 4, or amino acids 1-201 of SEQ ID NO: 6; or which are encoded by a nucleotide sequence which hybridizes under medium stringency conditions with any of the polynucleotide probes recited in claim 74.


For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 102. Applicants respectfully request reconsideration and withdrawal of the rejection.

VIII. Conclusion

In view of the above, it is respectfully submitted that all claims are in condition for allowance. Early action to that end is respectfully requested. The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,

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